

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-14 are presented in the present application. Claims 1-10 are amended and Claims 11-14 are added by the present response.

In the outstanding Office Action, the specification was objected to; Fig. 3c was objected to; Claims 1, 4, and 8 were objected to; Claim 3 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite; Claim 1 was rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter; Claims 1, 4, and 6-9 were rejected under 35 U.S.C. § 102(b) as anticipated by Staphanos et al. (U.S. Patent Application Publication No. 2002/0134083, herein "Staphanos"); Claim 10 was rejected under 35 U.S.C. § 103(a) as unpatentable over Staphanos; and Claims 2-3 and 5 were rejected under 35 U.S.C. § 103(a) as unpatentable over Staphanos in view of Mandel et al. (U.S. Patent No. 5,970,426 , herein "Mandel").

Regarding the objection to the specification, the specification has been amended as suggested by the outstanding Office Action. No new matter has been added. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the objection to the drawings, Figure 3c has been amended to indicate oxygen (O₂) instead of "O2%", which was considered by the outstanding Office Action as unclear. The claim amendments find support in the specification, for example, at page 2, line 23, where oxygen emission is discussed. No new subject matter has been added. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the objection to Claims 1, 4 and 8, these claims have been amended as suggested by the outstanding Office Action. No new matter has been added. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the rejection of Claim 3 under 35 U.S.C. § 112, second paragraph, this claim has been amended to more clearly recite the novel subject matter. No new matter has been added. Accordingly, it is respectfully requested that this rejection be withdrawn.

Regarding the rejection of Claim 1 under 35 U.S.C. § 101 as directed to non-statutory subject matter, independent Claim 1 has been amended to refer to a processor that processes data regarding a gas turbine. Accordingly, it is respectfully submitted that amended Claim 1 and each of the claims dependent therefrom refer to statutory subject matter. No new matter has been added. Accordingly, it is respectfully requested that this rejection be withdrawn.

Independent Claims 1 and 4 have been amended to more clearly recite that data relating to an operating state of a gas turbine includes a rotation speed of a shaft, a temperature of a discharge of the gas turbine, and a temperature of the environment. Further, Claims 1 and 4 have been amended to recite that an evaluation of emissions of the gas turbine is performed without using in-line analyzers. The claim amendments find support in the originally filed specification, for example, at page 2, lines 5-16, page 5, lines 11-16, and page 6, line 21 to page 7, line 13. No new matter has been added.

The outstanding rejections on the merits of the claims are believed to be overcome by the amended claims as discussed next.

Briefly recapitulating, amended Claim 1 is directed to a method for estimation and control of concentrations of pollutant gases at a discharge of a gas turbine. The method includes a step of receiving a plurality of signals corresponding to data relating to an operating state of the gas turbine, processing in a processor the data, and evaluating emissions into the atmosphere from the gas turbine based on the processed data without using in-line analyzers. The data includes a rotation speed of a shaft, a temperature of a discharge of the gas turbine, and a temperature of the environment. Although different from independent Claim 1, independent Claim 4 has been amended similar to independent Claim 1.

The claimed device advantageously calculates the emissions instead of measuring them with in-line analyzers, which require frequent calibration interventions with sample cylinders. As noted in the specification on page 2, lines 8-15, the in-line analyzer requires “a periodic check of the compatibility of the results of the analyzer, with the emissions actually measured, in order to keep the model compatible with the most recent states of the machine.”

Turning to the applied art, Staphanos discloses a system for generating electricity that includes a generator and an interface that monitors emissions of the system. More specifically, Figure 1 shows a continuous emission monitoring system 10 that is coupled to a container 12 and the system “periodically or continuously, extracts samples of exhaust gas from container **12** and analyzes such gases for constituent components.”¹

¹ See Staphanos, paragraph [0026].

In other words, the device of Staphanos uses in-line analyzers for determining the gases at the exhaust of the gas turbine, i.e., a device that uses the gas itself and analyzes the constituent components of the gas for determining various emissions. In this regard, Figure 4 shows a more detailed view of an analyzer 200 that has an enclosure 202 in which a sample gas is received via a line 204 and also has calibration source gases 206. Further, Staphanos discloses in paragraph [0036] on page 4 that a “sample gas passes through a paramagnetic oxygen detector which is specifically adapted to measure oxygen in the 0 to 20% range and provide a signal related to oxygen concentration to CPU **212**.”

In addition, Staphanos is silent about receiving data that includes a rotation speed of a shaft, a temperature of a discharge of the gas turbine, and a temperature of the environment and determining the emissions based on this data. In fact, Staphanos does not to receive such data as the in-line analyzers used in its device directly measures the emissions.

Therefore, the device of Staphanos does not receive the claimed data and does not evaluate the emissions of the gas turbine based on the measured data but rather directly measures the composition of a gas sample to detect the emissions.

Accordingly, it is respectfully submitted that independent Claim 1 and 4 and each of the claims dependent therefrom patentably distinguish over Staphanos.

The outstanding Office Action relies on Mandel for disclosing a step of storage of data sets. However, Mandel does not overcome the deficiencies of Staphanos as discussed above with regard to independent Claims 1 and 4. Accordingly, it is

respectfully submitted that dependent Claims 2, 3, and 5 also patentably distinguish over Staphanos and Mandel, either alone or in combination.

Accordingly, in light of the above discussion and in view of the enclosed amendments, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested. If, however, there are any remaining unresolved issues that would prevent the issuance of the Notice of Allowance, the Examiner is urged to contact the undersigned at (540) 361-2601 in order to expedite prosecution of this application.

Respectfully submitted,
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